

**CLAIMS**

1. A device for the electrical initiation of at least  
5 one pyrotechnic microcharge (3, 3a, ..., 3h),  
characterized in that it comprises a support element  
(9, 9') having at least one electrically conductive  
portion connected to a first terminal of a central  
10 control unit (8, 8'), a second terminal of said central  
control unit (8, 8') being intended to be electrically  
connected to an electrically conductive support, the  
microcharge (3, 3a, ..., 3h) being located at a  
sufficient distance from said conductive support to be  
able to be ignited by localized heating of the support,  
15 this heating being carried out via the conductive  
portion placed in contact with the conductive support,  
just beneath the pyrotechnic microcharge (3, 3a, ...,  
3h).
- 20 2. The device as claimed in claim 1, characterized in  
that the pyrotechnic microcharge (3, 3a, ..., 3h) is  
deposited on the conductive support.
3. The device as claimed in claim 1, characterized in  
25 that the pyrotechnic microcharge (3, 3a, ..., 3h) is  
separated from the support by at least one thermally  
conductive layer.
4. The device as claimed in one of claims 1 to 3,  
30 characterized in that the conductive portion is  
produced at least at the top of a finger (6, 6a, ...,  
6h and 6', 6'a, ..., 6'i), said finger (6, 6a, ..., 6h  
and 6', 6'a, ..., 6'i) being positioned so as to bear  
via its top against the conductive support.
- 35 5. The device as claimed in claim 4, characterized in  
that the finger (6, 6a, ..., 6h) is mounted on a spring  
(7, 7a, ..., 7h).

6. The device as claimed in claim 4 or 5, characterized in that the finger (6, 6a, ..., 6h) is an electrode made of carbon or made of titanium.

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7. The device as claimed in claim 4, characterized in that the finger (6', 6'a, ..., 6'h) consists of a boss made of flexible material formed on the support element (9').

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8. The device as claimed in claim 7, characterized in that the support element (9') consists of a thermoformed sheet of flexible material in which said boss (6', 6'a, ..., 6'i) is formed, the boss forming a finger intended to bear via its top against the conductive support.

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9. The device as claimed in one of claims 4 to 8, characterized in that, when the support element (9, 9') comprises a plurality of fingers (6a, ..., 6h, 6', 6'a, ..., 6'i), the electrically conductive portions are connected in parallel to the first terminal of the central control unit (8').

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10. The device as claimed in one of claims 4 to 9, characterized in that, when the support element (9) comprises a plurality of fingers (6a, ..., 6h), the position of the fingers (6a, ..., 6h) can be adjusted.

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11. A microactuator (1, 1a, ..., 1h) comprising an actuating element that can be actuated by the gases emanating from the combustion of at least one pyrotechnic microcharge (3, 3a, ..., 3h), characterized in that said microcharge (3, 3a, ..., 3h) is located at a sufficient distance from a conductive layer (11) to be able to be ignited by localized heating using an initiation device in accordance with that of claims 1 to 10, in which an electrically conductive portion is placed on said pyrotechnic microcharge (3, 3a, ..., 3h)

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in contact with the conductive layer (11), just beneath said pyrotechnic microcharge (3, 3a, ..., 3h).

12. The microactuator (1, 1a, ..., 1h) as claimed in  
5 claim 11, characterized in that the pyrotechnic microcharge (3, 3a, ..., 3h) is deposited on a face (110) of the conductive layer and in that the conductive portion is in contact with the face (111) of the conductive layer (11) on the opposite side to that  
10 on which the pyrotechnic microcharge (3, 3a, ..., 3h) is deposited.

13. The microactuator (1, 1a, ..., 1h) as claimed in  
claim 11 or 12, characterized in that the conductive  
15 layer (11) consists of a metal film.

14. The microactuator (1, 1a, ..., 1h) as claimed in  
claim 13, characterized in that the film is made of  
aluminum.

20 15. The microactuator (1, 1a, ..., 1h) as claimed in  
claim 14, characterized in that the aluminum film has a  
thickness of between 20 and 150  $\mu\text{m}$ .

25 16. The microactuator (1, 1a, ..., 1h) as claimed in  
claim 14 or 15, characterized in that the aluminum film  
has a thickness of 70  $\mu\text{m}$ .

30 17. The microactuator (1, 1a, ..., 1h) as claimed in  
one of claims 11 to 16, characterized in that it is  
produced by assembling superposed layers (10, 11, 12).

18. The microactuator (1, 1a, ..., 1h) as claimed in  
claim 17, characterized in that it includes a cavity  
35 (2a, ..., 2h) formed by the multilayer assembly, in  
which cavity at least one pyrotechnic microcharge (3a,  
..., 3h) is placed, said cavity (2a, ..., 2h) being  
closed by a layer (12) constituting a deformable  
membrane.

19. A microsystem (1'), characterized in that it comprises a support for a plurality of adjacent microactuators (1a, ..., 1h) in accordance with that of  
5 claims 11 to 18, the pyrotechnic microcharges (3a, ..., 3h) of the microactuators (1a, ..., 1h) being located at a sufficient distance from the conductive layer (11) to be able to be ignited, each independently, by heating using the initiation device whose support  
10 element (9, 9') is fitted onto the support for the microactuators (1a, ..., 1h), said initiation device comprising a plurality of conductive portions connected in parallel to the first terminal of the central control unit (8'), a conductive portion being placed on  
15 each of the pyrotechnic microcharges (3a, ..., 3h), in contact with the conductive layer (11), just beneath each of the pyrotechnic microcharges (3a, ..., 3h).

20. The microsystem (1') as claimed in claim 19,  
20 characterized in that the microactuators (1a, ..., 1h) are all formed from an assembly of the same layers (10, 11, 12).